West Lafayette Extended Detention Wetland Design

ABE 485 Senior Design
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Objectives:
- To reduce flooding and improve water quality in the West Lafayette area
- To increase the amount of vegetation and diversity of wildlife in the area

Importance:
An increase in population and development has led to:
- an increase in waste and runoff into the Wabash River
- a decrease in wildlife habitat and diversity
Methodology:
- Determine Stormwater wetland type
- Wetland characteristics
  - Surface area
  - Length to width ratio
  - Microtopography
- Location
  - Known flood problems
  - Minimal disruption
  - Possible inlets
  - Possible outlets
- Landscaping
  - Variety of species
  - Enhance pollutant removal
  - Habitat for wildlife

Results:
- Stormwater wetland design: Extended Detention
- Surface Area: 10 acres
- Length to width ratio: 1.5:1
- Location: Off of 43 before Soldiers Home Road
- Inlet: Storm drain
- Outlet: Wabash River
Landscaping:
- Arrowhead
- Cattail
- Duckweed
- Elodea
- Hydrilla
- Water Lily

Wildlife:
- Muskrats
- Quail
- Rabbits
- Waterfowl

Future Work:
- Construction process
- Construction cost
- Completion time

References:
- SMRC - Stormwater Manager’s Resource Center
- L-THIA - Watershed delineation program

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